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ABSTRACT

The study reported was designed to test the hypothesis that no difference in reading achievement scores of second and third grade children requiring remediation would result between Ss receiving both regular classroom and Miller-Unruh Reading Center instruction and Ss receiving classroom instruction only. Reading Center instruction took a diagnostic-eclectic approach during 25-30 minute periods four times per week for three to seven months, depending upon how soon Ss achieved reading grade level. Ss were selected first for Center treatment if their scores on the SAT Primary 1 and 2 fell three to six months below grade level. Pairs of experimental and control Ss were matched on the basis of I.Q., chronological age, sex, classroom group, grade level, grade retention, socio-cultural background, academic retardation level, and identical twins. The t-test for matched groups by the direct difference method revealed no significant difference between means at .05 and .01 levels for the second grade group; however, third grade experimental Ss attained a significant difference at the .01 level. (Author/RD)

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MILLER-UNRUH READING CENTER:

THE COMPARISON OF PROGRESS IN READING WITH SECOND AND THIRD GRADE STUDENTS

by

Mildred C. Williams

A thesis

submitted in partial

fulfillment of the requirements for the degree of

Master of Arts in the School of Education

Fresno State College

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This research was conducted at Lee Richmond Elementary School, Hanford, California, under the Miller-Unruh Reading Program.

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CHAPTER I

INTRODUCTION

In 1965, the Miller-Unruh Reading Program commenced activities in the State of California by the passage of the Miller-Unruh Reading Act. This study was a partial assessment of subjects' growth with a standardized instrument in relation to the application of State Guidelines as interpreted by the participating district. The interpretation of the qualitative results which may influence educational attitudes is the primary purpose of this study.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to show the effectiveness of the reading center, not as an isolated entity, but as a supplement of an adequately well rounded reading program furnished by the classroom teacher; and (2) to show quantitative growth with the use of standardized instruments.

Statement of hypothesis. There will be no significant difference in the achievement scores of the students receiving supplementary reading skills by attending the reading center when compared to scores of matched students in the regular classroom.

II. DEFINITION OF TERMS USED

Miller-Unruh Reading Program. The Miller-Unruh Basic Reading Act was signed by Governor Edmund G. Brown on July 14, 1965. It was authored by

Senator George Miller and Speaker of the Assembly Jesse Unruh, for special elementary school reading instruction programs making it a part of the Education Code. The intent and purpose of the law in accordance to the act is "the prevention of reading disabilities and the correction of reading disabilities at the earliest possible time in the educational career of the pupil."[1]

Disabled reader. The disabled reader is one who does not read as well as he should. Poor readers are not necessarily disabled readers and children who are progressing seemingly well may well be disabled readers. Many disabled readers may be found among the average readers and a few in the upper strata.[2]

Reading center. The reading center is a place where disabled readers receive remedial instruction based on diagnostic findings. The center utilizes the eclectic approach to administer remediation, that is to say any method best suited toward effective remediation.

Prevention of reading difficulties. To differentiate between prevention and remediation in this experiment, prevention merely refers to correction during the earlier continuum of the developmental reading-learning span of the subject.

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[1]State Department of Education, Division of Instruction, Guidelines for Miller-Unruh Programs. Revised.

[2]Guy L. Bond, and Miles A. Tinker, Reading Difficulties: Their Diagnosis and Correction (second edition; New York: Appleton-Century Croft, Division of Meredith Publishing Company, 1967), p. 12.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature was based on substantiating the reason for the experiment and experimental design used in this study. Selections were made to help clarify or justify modus operandi.

I. EFFECT OF REMEDIATION

Reports cited ample proof that good remedial programs are effective at any grade level. It is assumed that normal children under normal conditions improve one grade a year.

Short programs and even less systematic remedial instruction produce better than average normal gains. According to findings there is an important relationship between remedial instruction and increased skill in reading.[1]

Bluestein made a study on the long term effectiveness of remediation because evidence of reading gains after remediation was inconclusive. It was believed that experimental periods were not long enough to prove reading achievement. He selected disabled subjects with average or above average I. Q. and spent 50 minutes per day on remediation. The approach

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[1]Guy L. Bond and Miles A. Tinker. Reading Difficulties: Their Diagnosis and Correction (second edition; New York: Appleton Century Croft, Division of Meredith Company, 1967), pp. 12-13.

used was eclectic and little attempt was made to determine the etiology of disability. Overt systems were analyzed and selections for appropriate remediation methods were used. Failure to respond to one method required the use of another. The average gain was 7.1 months before remediation. Appraisal immediately after evaluation showed 11.7 months gain. The final number of subjects was 33.[2] Bluestein reported that:

> Whether or not disabled readers ever "catch up" may depend, in part, upon how "catching up" is defined. If children are expected to achieve "at grade level," then these children remained at least five months retarded to achieve at a level commensurate with their intellectual capacities, then considering that most of the reading center alumni were presumably of average or superior ability and that most were one or more years over-age for their grade placement, it would appear that they were even more retarded in reading than the final scores would indicate upon first inspection. On the other hand, it is clear that in any given group of children many will be found to score above or below the mean in achievement. Furthermore, a five month disability in the eighth grade is not so serious a handicap as fourteen-month disability in the fourth grade. These children at least give evidence of beginning to "catch up" with their grade peers...[3]

Balow stated that remedial assistance appears to be effective; but recommended further research on intensive instruction over an extended period of months or years to determine whether severely disabled readers could take their place among normal students making normal progress in school.[4]

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[2]Venus W. Bluestein, "Long Term Effectiveness of Remediation," Journal of School Psychology, VI (Winter 1968), 130-33.

[3]Ibid., p. 135.

[4]Bruce Balow, "The Long-Term Effect of Remedial Reading Instruction," The Reading Teacher, XVII (April 1965), 584.

A study which used speech as an independent variable revealed positive results. A twenty minute session per day for six weeks of speech therapy was given to the experimental group by Sonenberg and Glass. Although no statistical tests were applied, the experimentors implications pointed toward greater improvement for the experimental group.[5]

II. APPROACH

Diagnostic teaching with an eclectic approach appeared to be the most effective for remedial centers upon considering several studies. Sipay stated that "no one program proved to be superior for all children in every aspect of reading measured.[6] Bond and Tinker also recommended a diagnostic type teaching in remedial reading centers.[7]

Upon acceptance of diagnostic remedial instruction as the approach, studies on sensory modes speculated on which degree of sensory mode to concentrate teaching; strength or weakness. Robinson's study on sensory limitation at the University of Chicago revealed no significant difference in achievement by application of concentrated teaching on strength on a large scale.[8] Bateman's review of the literature concerning remedial

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[5]Theodore L. Harris, Wayne Otto, and Thomas C. Barrett, "Summary and Review of Investigations Relating to Reading July 1, 1965 to June 30, 1966." The Journal of Educational Research, LX (March 1967), 318 citing Sonenberg and Glass, "Reading and Speech: An Incidence and Treatment Study," The Reading Teacher, XIX (May 1966), 580-85.

[6]Edward R. Sipay, "Interpreting the USOE Cooperative Reading Studies," The Reading Teacher, XXII (October 1968), 16.

[7]Bond and Tinker, op. cit., pp. 241-65

determined by diagnosis concluded with a new concept; the resolution may lie in differentiation between training deficient cognitive abilities and teaching specific achievements since there was no conclusive evidence to support the concept of significant interaction between subject's cognitive patterns and method of remediation.[9]

III. VARIABLES

Teacher. Bluestein selected the remedial reading teacher on the basis of teaching experience, classroom skills, special training in primary and remedial reading techniques and on a type of personality which appeared agreeable in working with disabled readers. On the basis of the result of the study, it was assumed that they were highly successful.[10]

In studies utilizing classroom teacher judgment on pupil performance, the results were contradictory. Brown found teacher judgment correlated highest with the instructional reading level of an informal reading test at 4.84 significance.[11] Finley, on the other hand, found that on comparison with the California Achievement Test teachers did not seem to be able to estimate pupil achievement accurately enough; on comparison with the

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[8]Helen M. Robinson, cited by The Reading Newsreport, II (March 1968), 51.

[9]Barbara Bateman, "Learning Disorders," Review of Educational Research, XXXVI (February 1966), 113.

[10]Bluestein, op. cit., p. 131.

[11]Sandra Rose Brown, "A Comparison of Five Widely Used Standardized Reading Tests and An Informal Reading Inventory for a Selected Group of Elementary School Children," Education: Dissertation Abstracts, XXV (August 1964), 996.

Metropolitan Achievement Test, teachers were able to estimate the achievement level of pupils about half the time; and on the Iowa Test of Basic Skills, they were able to estimate the achievement level of pupils more than half the time. In conclusion, Finley cautioned against generalization against teacher judgment on pupil performance because substantial differences exist among standardized tests on achievement and their ability to function as a valid criteria.[12]

Teacher operative is a strong basis for not over emphasizing methodology in Sipay's review on citing Fry, who states:

> The variation between classrooms within a method was much greater than the variation between methods. What this means is that some factor, such as possibly better teaching, influenced the class reading achievement scores much more than the methods used.[13]

Time factor. Niles studied the progress of slow first grade pupils and found no statistical differences using extra teacher contact in three half hour sessions per week.[14]

Tuel found that a variable amount of time could operate to counteract individual differences by permitting slow learners to proceed at a lower rate for a longer period of time by additional practice to

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[12]Carmen J. Finley, "How Well Can Teachers Judge Pupil Achievement? The Case of the Illusive Criterion," California Journal of Educational Research, XVII (May 1966), 130-1.

[13]Edward R. Sipay, "Interpreting the USOE Cooperative Reading Studies, The Reading Teacher, XXII (October 1968), 12, citing E. B. Fry, The Reading Teacher, 1966, XIX, 666-69.

[14]Olive S. Niles, "Methods of Teaching Reading to First Grade Children Likely to Have Difficulty with Reading," The Reading Teacher, XX (March 1967), 541-5.

equal or surpass better students.[15]

Subjects. Most reading teachers agreed that the first four years of reading skill development were much the hardest and that marked gains were more readily obtained after independent word recognition skill was established.[16]

As part of his finding, Bond found that greater progress could be expected from younger children between the ages of 8 to 11 than with older children in remediation. This brings to point the need for early detection of reading disabilities and use of remediation proceedings.[17]

IV. SUMMARY

When gains were measured in terms of above or below the mean achievement, ample proof was available to substantiate that remedial reading is effective. Further research findings on long term effects was deemed necessary to determine whether severely retarded readers ever "catch up."

Improvement of speech indicated greater improvement in reading and diagnostic teaching with an eclectic approach appeared to be the best

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[15]John K. Tuel, "The Relationship of Intelligence and Achievement Variables in Programmed Instruction," California Journal of Educational Research, XVII (March 1966), 69.

[16]Balow, op. cit., p. 581.

[17]George W. Bond, "Needs of Children with Reading Disabilities," Doctoral Thesis, University of Pennsylvania (1948), p. 4.

procedure in a reading center. Since the approach of teaching to the strength of sensory modes proved insignificant, teaching to modal weakness was considered a possible avenue of correction.

Remedial reading teachers selected on the basis of training in the teaching of reading and other characteristics of good teachers were highly successful. Teacher judgment of pupil performance proved to be contradictory primarily due to the variability between test instruments and unavoidable subjectivity in judgment.

Time was considered important in dealing with children of different abilities. The slower pupils were thought to best progress at a slower pace for a longer duration.

Remediation took place between the ages of 8 to 11; strong contention for prevention by having remediation at an earlier age was recognized, thus having a basis for the existence of the Miller-Unruh Reading Program.

CHAPTER III

RESEARCH METHODS

In order to test the hypothesis of no difference in the achievement scores of students receiving regular and supplementary reading to scores of students receiving regular classroom reading, matched pairs were selected for comparison of results.

I. SELECTION OF SUBJECTS

The (R) remedial group consisted of all second (N=9) and third (N=13) grade children enrolled in the Miller-Unruh Reading Program at Lee Richmond Elementary School in Hanford, California. The total group (N=22) consisted of 14 boys and 7 girls.

Pairs were matched as closely as possible on the following: (1) Intelligence quotient, (2) Chronological age, (3) Same sex, (4) Belong to the same class, (5) Same grade level, (6) Retention, (7) General socio-cultural background, (8) Level of academic retardation, and (9) Identical twins.

I. Q. The Chicago Non-Verbal was administered to every participant in both the experimental and control group. There was a range difference plus or minus zero to ten points between pairs. The experimental group I.Q. ranged from 79 to 115 and the control group I.Q. ranged from 87 to 120. There was a zero difference between the I.Q. averages of both groups.

Chronological age. The experimental group ranged from 7 years

7 months to 10 years 6 months and the control group ranged from 7 years 7 months to 9 years and 11 months. The average age difference was 19 days; a plus factor for the experimental group. There was a range difference of 0 to 12 months difference between pairs.

Sex. All subjects were matched with the same sex with the exception of one second grade subject whose I.Q. could not be adequately matched by any male member in the classroom or grade level. A female match was the only one of similar caliber and academic level.

Same or different classroom. The teachers of Lee Richmond School from grades one, two and three used the basal text as their primary way of teaching reading; but also incorporated other methods such as language experience, phonics, and individualized reading. In brief, their approach was basal in emphasis with eclectic supplement. Teachers often teamed and shared materials with each other, thereby reducing the difference in use of materials and in exposing experiences to children.

An attempt was made to select matched pairs from the same classroom to reduce variability. In cases where there were no adequate matches, the selection was made from another classroom within the same grade.

There were seven second grade pairs and nine third grade pairs matched within the same classroom. There were two second grade and four third grade pairs matched within grade level; but not from the same class. I.Q., age, and identical twin factors were the main reason for seeking matched pairs outside of the remedial subject's class.

Retention. Repeaters were paired with repeaters when possible and

in the case of a shortage, repeaters and non-repeaters were allowed a twelve month difference between birthdays.

Identical twins. There was one pair of identical male twins in the third grade.

Academic level. Subjects were selected if they fell 3 to 6 months below grade level or were selected after the list of names from the 3 to 6 months level was exhausted. The local guidelines stated that it was preferable to work with children with potential and with a performance of 3 to 6 months below grade level in the Stanford Achievement Test. This group was thought to be easily remediable and could be returned to the classroom sooner, thereby allowing the remainder of the time for those who might be more difficult to deal with and take a longer remediation period. The rationale was that the latter, if selected first, would now allow much time for those who need limited remediation.

Time factor. The amount of time individuals spent in the reading center varied from 3 to 7 months. Children were returned to the classrooms when they appeared to have reached grade level and as assessed by the Durrell Analysis of Reading Difficulty. Center time for remediation lasted 25 to 30 minutes for four days a week. The second graders averaged 6½ months and the third graders averaged 4½ months of center time.

Dropped experimental participants. Nine participants were dropped from the study due to (1) moving (2) poor cooperation from a teacher (3) and no match available for a student with an I.Q. of 147.

Method. Each individual in the experimental group was administered

the Durell Analysis of Reading Difficulty. Lessons were based on the child's weakness and each area was given rank priority in consideration for remediation. A diagnostic-eclectic approach was utilized to meet the children's needs. Heavy emphasis was placed on the ability to decode after the child learned letters and letter sounds, the initial and final consonant concept and to retain a few sight vocabulary words. Learning to read through the intensive use of sensory modes (other than visual) was used in cases where the child appeared to be partially dyslectic or neurologically handicapped. Stress was also placed on pacing in performing tasks to enhance retention and speed.

Background. Cumulative records were checked for the subjects general health, vision, and hearing. The records were also screened to check for any significant emotional disorders as indicated by teachers' comments and the general status of the child's socio-cultural background which in this case revealed two major segments, Anglo and Mexican-American. The general population of Lee Richmond School is middle class. Records and interviews with teachers indicated 3 speech cases, 3 emotional problems, 1 tested educationally handicapped, 1 untested candidate for the educationally handicapped and 10 repeaters. Out of 22 subjects 9 were recognized as Mexican-American and the remainder Anglo. Recognized disabilities and pertinent factors were considered in the process of matching except in the case of speech.

Table 1 provides data on the independent variables used in the selection of matched pairs.

TABLE 1

INDEPENDENT VARIABLES USED IN THE SELECTION OF MATCHED PAIRS,
DATA COLLECTED DURING 1968-69 PERIOD

Pair	Sex		IQ		Class	Repeater		Grade	Months in Center		Age	
	E	C	E	C		E	C		E	C	E	C
1	M	M	95	90	D/C	Yes	Yes	2	7	0	9-3	9-6
2	M	M	100	100	S/C	Yes	Yes	2	7	0	8-10	8-10
3	F	F	103	106	S/C	No	No	2	3	0	8-7	8-8
4	M	M	106	105	D/C	Yes	Yes	2	6	0	9-5	9-9
5	F	F	101	97	S/C	No	No	2	7	0	7-8	7-8
6	M	M	98	94	S/C	Yes	Yes	2	7	0	8-7	8-7
7	M	F	112	111	D/C	No	Yes	2	8	0	7-7	8-6
8	M	M	79	109	S/C	No	No	2	6	0	8-9	8-10
9	F	F	115	120	D/C	No	No	2	7	0	7-10	7-7
10	M	M	97	88	D/C	Yes	Yes	3	5	0	9-7	9-11
11	F	F	103	103	S/C	Yes	No	3	6	0	9-10	8-10
12	M	M	87	90	D/C	Yes	Yes	3	3	0	10-6	9-6
13	M	M	109	103	S/C	Yes	Yes	3	3	0	10-1	9-5
14	F	F	109	117	S/C	No	No	3	6	0	8-8	8-6
15	M	M	97	87	S/C	No	No	3	6	0	9-0	9-4
16	M	M	104	93	S/C	Yes	No	3	6	0	9-8	8-9
17	M	M	91	85	S/C	No	No	3	7	0	8-7	9-1
18	F	F	98	97	S/C	No	No	3	3	0	9-4	9-2
19	M	M	83	88	D/C*	Yes	Yes	3	3	0	9-11	9-11
20	M	M	97	99	S/C	No	No	3	5	0	8-9	8-10
21	M	M	105	115	S/C	No	No	3	4	0	8-6	9-6
22	F	F	109	105	D/C	No	No	3	3	0	8-10	9-3

Code: M = male
F = female
S/C = pair from same classroom
D/C = pair from different classroom
E = experimental subject
C = control subject
* identical twin

II. TEST PROCEDURE

The test instrument used to determine progress in reading was the Stanford Achievement Test, Primary I, Form W, and Primary II. Forms W and X were used as mandated by the California State Department of Education. Primary I, Form W, was administered to all of the present second grade students at the end of grade one and served as a pre-test. Primary II, Form W, was administered to all of the second grade students at the end of grade two and served as a post-test. Primary II, Form W, was administered to the present third graders at the end of grade two and served as a pre-test, Primary II, Form X, was used as a post-test at the end of the third grade year. Pre-test for 1968 was administered during the week of May 6 to 10 and post-test for 1969 was administered during the week of May 5 to 9 by the classroom teachers. Teachers hand scored the results and the statistical data were handled by the district special services department.

I. Q. scores were obtained from the Chicago Non-Verbal which was administered by the Miller-Unruh Reading Specialist in small groups of ten. The instructions were verbal rather than pantomime. The test was performed at the beginning of the 1969-70 academic year.

Teachers were not aware of the study until the data were completed and collected on the total student population of the school.

Table 2 provides the data collected during the 1968 pre-test and the 1969 post-test on the Stanford Achievement Test for grades two and three on total scores obtained from word and paragraph meaning.

TABLE 2

SAT PRE-TEST (1968) AND POST-TEST (1969) CONVERTED TOTAL SCORES ON WORK AND PARAGRAPH MEANING OF SECOND (*) AND THIRD GRADE STUDENTS

	Experimental			Control		
Pair	Pre	Post	Difference	Pre	Post	Difference
*1	1.5	1.9	.4	1.7	1.8	.1
*2	1.7	2.4	.7	1.8	2.5	.7
*3	1.7	2.2	.5	1.6	2.4	.8
*4	1.8	2.1	.3	1.8	2.8	1.0
*5	1.6	1.9	.3	1.7	2.6	.9
*6	1.9	2.4	.5	1.9	3.2	1.3
*7	1.6	2.5	.9	1.6	2.3	.7
*8	1.7	3.3	1.6	1.7	2.3	.6
*9	1.6	2.3	.7	1.6	2.8	1.2
10	1.8	3.2	1.4	1.8	2.4	.6
11	2.4	3.3	.9	2.3	2.5	.2
12	2.7	3.6	.9	2.2	2.6	.4
13	2.5	3.5	1.0	2.3	2.9	.6
14	2.1	3.1	1.0	2.1	3.3	1.2
15	2.6	3.5	.9	2.2	3.0	.8
16	2.2	3.9	1.7	2.5	3.7	1.2
17	2.1	3.2	1.1	2.5	3.4	.9
18	2.8	3.6	.8	2.8	3.0	.2
19	1.9	3.2	1.3	2.9	3.7	.8
20	1.9	2.7	.8	2.0	3.0	1.0
21	2.1	2.7	.6	2.0	2.4	.4
22	2.8	4.8	2.0	2.8	3.3	.5

III. TYPE OF MEASUREMENT

Parametric statistical procedures were used for analyzing and determing significant difference of scores between experimental and control groups.

The parametric statistical procedure used was the t-test for matched groups by the direct-difference method to show significant difference between means. This t formula (3) automatically has taken into account the correlation that exists between the raw score distributions regardless of the size or algebraic sign of the correlation. The following are the formulars of:

(1) standard deviation of the distribution of difference

$$\tilde{\sigma}_D = \sqrt{\frac{\Sigma_D^2}{N} - (\bar{X}_D)^2}$$

(2) standard error of the mean difference

$$S\bar{x}_D = \sqrt{\frac{\tilde{\sigma}_D}{N - 1}}$$

(3) t-value

$$t = \frac{\bar{x}}{S\bar{x}D}$$

Refer to Table 3 for the data used by the preceding formulas.

TABLE 3

STATISTICAL DATA FOR RELATED MEASURES

Second Grade

Control Group Mean = .8111

Experimental Group Mean = .6555

Standard Error of the Mean Difference = .1129

t= -1.387

df= 8

Third Grade

Control Group Mean = .6769

Experimental Group Mean = 1.1076

Standard Error of the Mean Difference = .120

t= 3.589

df= 12

CHAPTER IV

ANALYSIS AND RESULTS

Three t-tests by formulas (1), (2) and (3) on page 17 were computed on nine matched pairs of second grade students and thirteen matched pairs of third grade students. The Fisher-Yates statistical tables for values of t were used.

The t-test for the second grade group showed t equal to -1.387, not significant at the .05 level with a degree of freedom of 8. The third grade group showed significant difference between means with a t of 3.589, degree of freedom 12 and significant at the .01 level.

Several factors indicated that a Type II error, acceptance of a false hypothesis, was made. Analysis, primarily focused on the second grade matched pairs, provided several strong indications for error. Emperical clues initially pointed out that the SAT Primary I scores used as a basis for selection in determining initial reading levels for the purpose of matching appeared inadequate. First of all, teachers recommended members of the experimental group for remediation whereas others with the same reading level were not recommended. Secondly, the pre- and post-test administered to the second grade group was suspect, and suspicions were further substantiated by Buros' 1965 review on the Stanford Achievement Test Primary I in The Sixth Mental Measurement Yearbook as reviewed by Miriam M. Bryan. The Primary I test was considered to be reduced-range test which was not effective in measuring pupils

"above grade" and below grade."[1] Furthermore, contrary to good testing procedure, the second grade group was given the Primary I as a pre-test and Primary II for a post-test. Although the tests were published by the same company, they could not be considered as alternate tests in a statistical sense. An attempt was made, however, to equate the difference between the two tests by use of the converted scores as provided by the Stanford Achievement Test Manual.

Primarily the same test procedure was used for the third grade group; but the result was considered more valid because the same test was used for both pre-test and post-test.

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[1]Miriam M. Bryan, "Tests and Reviews: Achievement Batteries Stanford Achievement Test (1964) Revision, "The Sixth Mental Measurement Yearbook (New Jersey: Gryphon Press, 1965), p. 110.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

To test the hypothesis of no difference in the achievement scores of students receiving regular and supplementary reading to scores of students receiving regular classroom reading, matched pairs were selected for comparison of results.

Selection of subjects were based on (1) I. Q., (2) Chronological age, (3) Same sex, (4) Belong to the same class, (5) Same grade level, (6) Retention, (7) General socio-cultural background, (8) Level of academic retardation, and (9) Identical twins.

Subjects were considered first if they fell 3 to 6 months below grade level on the SAT Primary I and II. They were subjected to a diagnostic-eclectic approach as a method of remediation and prevention of reading difficulty.

The remediation period lasted 25 to 30 minutes, four days a week. The amount of time the experimental group spent in the reading center ranged from 3 to 7 months. They were dropped from the program when they appeared to have reached grade level on the basis of an informal test.

The t-test for matched groups by the direct-difference method was used to show any difference between means. The statistics on the second grade group showed no significant difference between means at either the .05 or .01 level, while the third grade group showed a

significant t at the .01 level.

II. CONCLUSIONS

The writer drew the following conclusions after evaluation of the review of the literature, research procedure and analysis of the results:

1. A subjective evaluation based on the criteria above and the Durrell Analysis of Reading Difficulty indicated that maturity or lack of it had a great deal to do with the performance of both the second and third grade group. It appeared that the second grade group under-achieved because of immaturity, especially in the area of visual memory and perception, whereas the more mature third grade group merely displayed remnant signs, which seemed to indicate that the older group after a certain level of maturity benefited more as far as the standardized test was concerned.

2. There was reason to believe that formal testing was an economic waste for grades one and two; instead, informal tests for diagnostic teaching purposes would have been much more beneficial to teachers.

3. Several factors indicated the operation of a Type II error, acceptance of a false hypothesis, on the second grade results. Error was attributed to the test instrument itself and improper application of tests.

4. Statistical data appeared inconclusive; but a closer examination of influencing factors favored the result of the third grade group. The third grade group, in comparison to the second, received a fairer test and could be better tested for reading skills and penalized less for maturational factors.

5. This experimental study indicated that there was significant difference of performance shown by the third grade students receiving supplementary reading instruction in the reading center; but no significant difference shown by the second grade group.

III. RECOMMENDATIONS

In view of the findings, the writer recommends the following:

1. Formal comparative testing commence at grade three; some authorities in reading believe that true remediation problems occur at this level of reading skill development.

2. The Miller-Unruh Reading Program continue to minister to the first and second grades with the idea of prevention; but eliminate formal tests until such time that the standardized test is able to include and consider the maturational factor fairly in the assessment of reading for these age groups.

3. Similar experimentation be done with better test material, a larger sampling, improved test procedure and for a longer period.

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